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EXAMINER

PATEL, PARESH H

ART UNIT PAPER NUMBER

2829

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,085

Applicant(s)

SIEW ET AL.

Examiner

Paresh Patel

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 05/14/2003 have been fully considered but they are not persuasive. Applicant's arguments with respect to amended claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Examiner objected claims in paper no: 3 to clear the confusion about first interface and second interface with first interface surface and second interface surface respectively. In response applicant maintain that, those terms as claimed are proper but did not provide any support from the specification. Second interface as claimed is not enabling from the specification.

Applicant argues that Rabkin does not teach a second interface 30 having interface terminals 40 and does not include first and second interface as claimed. Also, Rabkin does not disclose an actuator to move housing plate 35 relative to the test engine 62. Examiner disagrees, because: 1) a second interface as claimed and argued is not clearly defined in the disclosure; 2) under new ground of rejection Rabkin discloses first and second interface (27 and 28 respectively); 3) under new ground of rejection, an actuator (70) moves the housing plate (30) relative to test engine (62).

Applicant also argues that claim as amended, is not taught nor obvious by Wexler in view Rabkin, because they do not teach a second interface having interface terminals and does not include first and second interface, an actuator and a clamp assembly. Examiner disagrees for the same reason as above.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second interface must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1, 11 and 14, **a second interface** as claimed is not enabling from the disclosure. Fig. 1 as disclosed has a fixture 110 and two interface surfaces 120 and 116 in electrical relation with cover 112 and tester 104 respectively. In fig. 3-1 the fixture 110-1 has test board 170 near interface surface 116 for electrical relation with

Art Unit: 2829

tester 104. From either drawings it is not clear or enable **what is the second interface of the fixture (110 or 110-1).**

Regarding claim 7, the test fixture 110 assembly of claim 1 wherein the first interface is orientated in a first direction and the second interface is orientated in a second opposed direction from the first direction is not disclosed in the disclosure. See description of fig. 1 and 3-1.

Dependent claims are also rejected.

Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1, 11 and 14, **a second interface** as claimed cannot be described from the disclosure. Fig. 1 as disclosed has a fixture 110 and two interface surfaces 120 and 116 in electrical relation with cover 112 and tester 104 respectively. In fig. 3-1 the fixture 110-1 has test board 170 near interface surface 116 for electrical relation with tester 104. **Either drawing does not discloses the second interface of the fixture (110 or 110-1) as claimed.**

Regarding claim 7, orientation of first and second interface as claimed in indefinite because clamp member is/are orienting on the fixture and not the interface it self.

Dependent claims are also rejected.

Claims 20-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for test device (or test engine 104), does not reasonably provide enablement for test device comprises a test circuit, wherein test circuit includes a fixture. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. **Test device** as claimed is defined as element 104 in the disclosure, which is also a test engine or a tester or a test equipment. In the disclosure **the fixture** is a part of test system 100 and not of test device or test engine 104. Also **a test circuit** as claimed is not disclosed in the specification. In the claim the test circuit includes the fixture 110 which also makes claim indefinite because the fixture is a not part of test device 104 as mentioned earlier.

Claims 20-22 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 20, disclosure does not support test device comprising a test circuit.

Regarding claim 21, disclosure does not support the test circuit includes a fixture.

Regarding claim 22, disclosure does not support the test circuit further comprises a cover.

Art Unit: 2829

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 11 and 14, limitation "second interface " as claimed is not clear because disclosure lacks the description and hence second interface of the fixture is not enabling.

Regarding claims 20-21, a test device 104 comprises a test circuit, wherein test circuit includes the fixture 110. This structure is indefinite because the fixture is not a part of test device 104. The fixture is part of test system 100.

Dependent claims are also rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-18, 20-21, 1, 3, 6, and 8-10 are rejected as best understood by the Examiner under 35 U.S.C. 102(b) as being anticipated by Rabkin et al. (US 5828223).

Regarding claims 11 and 14, Rabkin discloses: a test assembly [21, 22a, 23] comprising: a fixture [28, 25, 26, 27, 30] including a first interface [27] having a plurality

Art Unit: 2829

of interface terminals [terminals of 27] adapted to electrically couple the fixture to a test engine [62] and a second interface [28] having a plurality of interface terminals [terminals of 28] adapted to electrically couple the fixture to terminals on a printed circuit board [chips for each 28 and lines 28-31 of column 3] and the plurality of interface terminals on the first interface being electrically connected to the plurality of interface terminals on the second interface [terminals between 27 and 28]; and

means [70] for removably installing the fixture to the test engine to provide an electrical connection between the interface terminals on the first interface and the test engine.

Regarding claims 12, 15 and 16, Rabkin discloses: the test assembly of claims 11 and 14, wherein the means for removably installing includes a clamp assembly [33, 72, 71, 73, 74] including opposed clamp members [top and bottom of 71], one of said clamp members forming a support surface [top surface of 71] to load the fixture for installation and the other of said clamp members [bottom of 71] being positionable between a load position (a first orientation) [before 30 shift by an operator] and a clamped position (a second orientation) [shift position of 30] to clamp the fixture to a test engine.

Regarding claim 13, Rabkin discloses: the test assembly of claims 12 wherein the clamp assembly is coupled to an actuator [70] movable between a first position spaced from the test engine to load the fixture (sequentially coupling a plurality of circuit boards) on the support surface and a second position proximate to the test engine to

Art Unit: 2829

provide an electrical connection between the fixture and the test engine (sequentially testing plurality of circuit board) to install the fixture.

Regarding claim 17, Rabkin discloses: The method of claim 15 and further comprising the steps of: sequentially coupling a plurality of circuit boards relative to the plurality of interface terminals on the second interface; and sequentially testing operation of the plurality of circuit boards [lines 1-20 of column 3].

Regarding claim 18, Rabkin discloses: the method of claim 14 and further comprising the steps of: operating the actuator assembly to retract the fixture from the test device; unclamping the fixture from the actuator assembly; and removing the fixture and installing a different fixture relative to the test device [lines 1-20 of column 3 and lines 43-60 of column 5].

Regarding claim 20, Rabkin discloses: a test device [62 of fig. 1-2] comprising: a test circuit [30, 40, 61, 35, 65, 21, 22] adapted to electrically test a particular circuit board [ICs of 28 on 25]; and means [70] for operably engaging the test circuit against the circuit board.

Regarding claim 21, Rabkin discloses: the test device of claim 20 wherein the test circuit includes a fixture [30,40,61,35] operably movable between a retracted position, and an installed position where the circuit board is tested.

Regarding claim 1, Rabkin et al. in fig. 3 discloses: a test fixture assembly [22a] for testing a printed circuit board [ICs on 28 of 25] comprising:

a fixture [28, 25, 26, 27, and 30] including a first interface [27] having a plurality of interface terminals [terminals of 27] adapted to electrically couple the fixture to a test

: Art Unit: 2829

device [62] and a second interface [each 28 of 25] having a plurality of interface terminals [terminals of 28] adapted to electrically couple the fixture to terminals on the printed circuit board and the plurality of interface terminals on the second interface being electrically coupled to the plurality of interface terminals on the first interface;

an actuator [70] operably coupled to the fixture to move the fixture between a first position to support the fixture at a position spaced from the test device and a second position to install the fixture relative to the test device to provide an electrical connection between the interface terminals on the fixture and the test device; and

a clamp assembly [71] adapted to selectively secure the fixture [using 71 with 72 and 33 of 30] relative to the actuator.

Regarding claim 3, Rabkin discloses: the test fixture assembly of claim 1 wherein the clamp assembly includes first and second clamp members [top and bottom of 71] having opposed clamp surfaces to secure the fixture there between and one of said clamp members forms a support member [bottom of 71 with surface of 33] to load the test fixture for installation.

Regarding claim 6, Rabkin discloses: the test fixture of claim 1 wherein the fixture includes guide holes [72 or holes for pin of 35] for insertion of guide pins [71 or pins for 35] on the test device or a cover.

Regarding claims 8, Rabkin discloses: the test fixture assembly of claim 1 wherein the actuator is a piston-cylinder actuator [inherent to 70].

Regarding claim 9, Rabkin discloses: the test fixture assembly of claim 8 wherein the piston-cylinder actuator is pneumatically operated [lines 45-51 of column 4].

Art Unit: 2829

Regarding claim 10, Rabkin discloses: the test fixture assembly of claim 1 and comprising at least four clamp assemblies [71, 73, 74] coupleable to at least four clamp openings on the fixture [37, 33 and 72].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rabkin as applied to claim 1 above, and further in view of Official Notice.

Regarding to claim 2, Rabkin discloses all the elements except the test fixture assembly further comprises **a rotator** coupled to the clamp assembly to rotate the clamp assembly between **a first orientation to load the fixture** and **a second orientation to clamp the fixture** for installation.

Rather, Rabkin discloses a dowels 33 in the socket plate 30 having key-hole slot 72 to receive actuator hat pins 71. In operation, socket plate 30 shifts horizontally to lock the socket plates to the actuator hat pins. Here, socket plate was shifted by an operator. It would have been obvious matter of design choice to use rotator to rotate the clamp assembly between first and second orientation, in order to load and clamp the test fixture during testing. Because the same invention can also be perform with hand

Art Unit: 2829

and not performing differently than the prior art, use of rotator is held unpatentable. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rabkin as applied to claims 3 and 1 above, and further in view of Official Notice.

Regarding claim 4, Rabkin discloses all the elements except the test fixture assembly of claim 3 wherein **the fixture includes an elongated clamp opening** having an elongated dimension and a narrower dimension and the other of **said clamp members includes a head having an elongated dimension and a narrower dimension** and the head is sized for insertion through the clamp opening in a **first orientation** with the elongated dimension of the head aligned with the elongated dimension of the clamp opening and the other of said clamp members being rotatable to **a second orientation** to align the elongated dimension of the head with the narrower dimension of the clamp opening to clamp the fixture relative to the one of said clamp members which forms the support member for installation.

Rather, Rabkin discloses a clamp opening [37 in 30], a clamp having a head [71], a first orientation [when 30 is loaded] of head and a second orientation [when operator shifts 30] of head. Rabkin uses hand to position the fixture on the clamp head 71 and used hand to slide the fixture in dowels 33 to clamp the fixture before testing. It would have been obvious to one having ordinary skill in the art to modify Rabkin's clamp opening of 30 as elongated clamp opening in the fixture and head 71 of 70 as an elongated head so rotation orientation of head will clamp the fixture using actuator 70 with the test fixture, in order to make clamping operation automatic after loading the

Art Unit: 2829

fixture. Because claimed elongated clamp opening with clamp head orientation would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device. See *In re Gardner v. TEC System Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. Denied, 469 U.S. 830, 225 USPQ 232 (1984).

Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabkin as applied to claims 1 and 14 respectively as above, and further in view of Wexler.

Regarding claims 5 and 19, Rabkin discloses all the elements except the method of claim 14 further comprising the steps of: positioning a circuit board between the fixture and a cover having interface terminals; and moving the cover to electrically connect the circuit board to the interface terminals on the fixture and the cover. Wexler discloses this step [see fig. 3] including cover [14]. It would have been obvious to one having ordinary skill in the art to modify Rabkin to include method step as taught by Wexler, in order to probe the device under test (i.e. printed circuit board) from both side so testing can be done rapidly for any customized applications of PCB.

Claim 22 is rejected as best understood by the Examiner under 35 U.S.C. 103(a) as being unpatentable over Rabkin as applied to claims 20 and 21 above, and further in view of Wexler.

In addition to all the elements of claim 22, Rabkin discloses a cover [21]. Rabkin do not disclose: the test device of claim 21 wherein the test circuit further comprises a cover **wherein both sides of the circuit board are electrically engageable**. However, Wexler discloses a cover [14] and both sides of the circuit board [12] are electrically

Art Unit: 2829

engageable [using 26 and 24]. It would have been obvious to one having ordinary skill in the art to modify the test device of Rabkin with both sides of the circuit board [12] are electrically engageable as taught by Wexler, in order to test the circuit board terminals from both side which reduces overall testing time of each printed circuit board.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 703-306-5859. The examiner can normally be reached on M-F (8:30 to 4:30).

Art Unit: 2829

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 703-308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Paresh Patel
July 25, 2003


VINH P. NGUYEN
PRIMARY EXAMINER
GROUP 2829
07/28/03